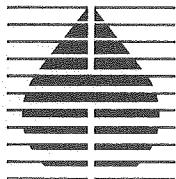


May 14, 1990

# DRAFT

FIELD DATA SUBMITTAL  
PART 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2B  
MONTROSE SITE  
TORRANCE, CALIFORNIA

APRIL 1990 GROUNDWATER SAMPLING



HARGIS+ASSOCIATES, INC.



## HARGIS + ASSOCIATES, INC.

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May 14, 1990

### VIA FEDERAL EXPRESS

Ms. Janet Bell  
Douglas Aircraft Company  
4900 Airport Plaza Drive  
Building 74  
Long Beach, CA 90815

Re: Field Data Submittal, Part 2, Remedial Investigative Work  
Phase 2B, Montrose Site, Torrance, California,  
April 1990 Groundwater Sampling

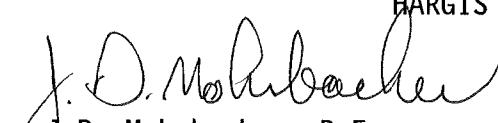
Dear Ms. Bell:

Enclosed please find the above-referenced document. This submittal provides field data obtained during the first initial sampling round for the seven recently installed upper Bellflower aquitard monitor wells. The submittal also provides field data for the annual groundwater sampling round. During the annual round, the second initial sampling of the seven new monitor wells was also conducted. The raw analytical data submittal for these sampling events will be provided in approximately three weeks.

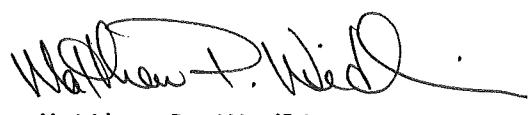
Please contact me if you have any questions regarding this submittal.

Sincerely,

HARGIS + ASSOCIATES, INC.



J.D. Mohrbacher  
Project Manager  
JDM/MPW/djr



Matthew P. Wiedlin  
RI Task Manager

cc: Dan M. Greeno  
Karl S. Lytz, Esq.

bel105.218.1

### Other Offices:

Tucson, AZ  
Mesa, AZ  
Manhattan Beach, CA  
Burbank, CA



HARGIS + ASSOCIATES, INC.

FIELD DATA SUBMITTAL  
PART 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2B  
MONTROSE SITE  
TORRANCE, CALIFORNIA

APRIL 1990 GROUNDWATER SAMPLING

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ILLUSTRATION

Figure

- 1 MONITOR WELLS AND EXPLORATORY BOREHOLES



HARGIS + ASSOCIATES, INC.

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- B INITIAL GROUNDWATER SAMPLING ROUND FOR WELLS MW-16 THROUGH MW-22 AND ANNUAL GROUNDWATER SAMPLING ROUND, APRIL 16-21, 1990



HARGIS + ASSOCIATES, INC.

FIELD DATA SUBMITTAL  
PART 2, REMEDIAL INVESTIGATIVE WORK  
PHASE 2B  
MONTROSE SITE  
TORRANCE, CALIFORNIA

APRIL 1990 GROUNDWATER SAMPLING

1.0 INTRODUCTION

This field data submittal has been prepared on behalf of Montrose Chemical Corporation (Montrose) as part of the Remedial Investigation (RI). This submittal is being provided in accordance with the Administrative Order on Consent, U.S. Environmental Protection Agency (EPA) Docket No. 85-04.

This Phase 2B field data submittal contains data obtained during groundwater sampling conducted in April 1990 (Appendices A and B). Two Phase 2B field data submittals and one Phase 2B raw analytical data submittal have been published previous to the publication of this April 1990 groundwater sampling field data submittal. One field data submittal contains monitor well data including lithologic logs for the monitor wells installed between August 1989 and April 1990. The second field data submittal contains field data obtained during groundwater sampling rounds conducted during the period October 1989 through February 1990. The raw analytical data submittal contains laboratory data for groundwater samples collected during the period October 1989 through February 1990. A second raw analytical data submittal will be prepared containing laboratory data for groundwater samples collected during the April 1990 groundwater sampling rounds.



## 2.0 GROUNDWATER SAMPLING

Groundwater sampling conducted during April 1990 consisted of two initial sampling rounds for newly constructed monitor wells MW-16 through MW-22 and one annual sampling round (Table 1). The first initial groundwater sampling round was conducted on April 5 and 6, 1990. The second initial groundwater sampling round was combined with the annual groundwater sampling round conducted during the period April 16 through 21, 1990. Groundwater sampling was performed in accordance with the EPA-approved Sampling Plan and Quality Assurance Project Plan dated May 20, 1988 (Hargis + Associates, Inc., 1988a and 1988b).

Monitor wells MW-20 and MW-21 were excluded from the second initial sampling round due to health and safety considerations. Monitor well MW-2 was excluded from the annual sampling round due to health and safety considerations. Monitor well LG-1 was not sampled during the annual sampling round because the dedicated sample pump malfunctioned.

Groundwater samples, including duplicate samples and field blanks collected during the sampling rounds, were submitted to Brown and Caldwell Laboratories, Glendale, California, for pesticide analysis using EPA Method 608/8080 and volatile organic compound (VOC) analysis using EPA Method 624/8240. Trip blanks were submitted to Brown and Caldwell Laboratories for VOC analysis using EPA Method 624/8240. Laboratory split samples collected during the sampling rounds were submitted to Analytical Technologies, Inc. (ATI), San Diego, California, for pesticide analysis using EPA Method 608/8080 and VOC analysis using EPA Method 624/8240. All groundwater samples submitted for VOC analysis were collected in pre-acidified vials. Samples collected for common ion and nitrate analysis were submitted to Brown and Caldwell Laboratories.



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Water levels were measured in all monitor wells that were sampled during the April 5 and 6, 1990, initial sampling round (Appendix A). Water levels were measured in all monitor wells during the April 16 through 21, 1990, combined initial and annual groundwater sampling rounds (Figure 1; Appendix B).



### 3.0 REFERENCES CITED

Hargis + Associates, Inc., 1988a. Remedial Investigative Work, Part 2, Quality Assurance Project Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.

\_\_\_\_\_, 1988b. Remedial Investigative Work, Part 2, Phase 2A Groundwater, Soil, and Sediment Sampling Plan, Montrose Site, Torrance, California. Prepared for Montrose Chemical Corporation, Torrance, California; May 20, 1988.



TABLE 1  
SUMMARY OF MONITOR WELL SAMPLING  
APRIL 1990

| <u>WELL ID</u> | .....DATES OF SAMPLING ROUND..... |                                                                           |
|----------------|-----------------------------------|---------------------------------------------------------------------------|
|                | <u>APRIL 5-6, 1990</u>            | <u>APRIL 16-21, 1990</u><br><u>ANNUAL ROUND/</u><br><u>INITIAL ROUND*</u> |
| MW-1           | ---                               | A                                                                         |
| MW-3           | ---                               | A                                                                         |
| MW-4           | ---                               | A                                                                         |
| MW-5           | ---                               | A                                                                         |
| MW-6           | ---                               | A                                                                         |
| MW-7           | ---                               | A                                                                         |
| MW-8           | ---                               | A                                                                         |
| MW-9           | ---                               | A                                                                         |
| MW-10          | ---                               | A                                                                         |
| MW-11          | ---                               | A                                                                         |
| MW-12          | ---                               | A                                                                         |
| MW-13          | ---                               | A                                                                         |
| MW-14          | ---                               | A                                                                         |
| MW-15          | ---                               | A                                                                         |
| MW-16          | A, B                              | A                                                                         |
| MW-17          | A, B                              | A                                                                         |
| MW-18          | A, B                              | A                                                                         |
| MW-19          | A, B                              | A                                                                         |
| MW-20          | A, B                              | ---                                                                       |
| MW-21          | A, B                              | ---                                                                       |
| MW-22          | A, B                              | A                                                                         |

\*Initial round for monitor wells MW-16 through MW-22;  
annual round for other wells sampled.

(---) = Not sampled

A = Analyzed for volatile organic compounds by EPA Method 624/8240  
and for pesticides by EPA Method 608/8080

B = Analyzed for nitrates and common ions



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TABLE 1 (continued)  
 SUMMARY OF MONITOR WELL SAMPLING, APRIL 1990  
 Page 2

.....DATES OF SAMPLING ROUND.....

| <u>WELL ID</u> | <u>APRIL 5-6, 1990</u><br><u>INITIAL ROUND</u> | <u>APRIL 16-21, 1990</u><br><u>ANNUAL ROUND/</u><br><u>INITIAL ROUND*</u> |
|----------------|------------------------------------------------|---------------------------------------------------------------------------|
| MW-23          | ---                                            | A                                                                         |
| MW-24          | ---                                            | A                                                                         |
| MW-25          | ---                                            | A                                                                         |
| MW-26          | ---                                            | A                                                                         |
| BF-1           | ---                                            | A                                                                         |
| BF-2           | ---                                            | A                                                                         |
| BF-3           | ---                                            | A                                                                         |
| BF-4           | ---                                            | A                                                                         |
| BF-5           | ---                                            | A                                                                         |
| BF-6           | ---                                            | A                                                                         |
| BF-7           | ---                                            | A                                                                         |
| BF-8           | ---                                            | A                                                                         |
| BF-9           | ---                                            | A                                                                         |
| BF-10          | ---                                            | A                                                                         |
| BF-11          | ---                                            | A                                                                         |
| BF-12          | ---                                            | A                                                                         |
| BF-13          | ---                                            | A                                                                         |
| BF-14          | ---                                            | A                                                                         |
| BF-15          | ---                                            | A                                                                         |
| BF-16          | ---                                            | A                                                                         |
| BF-17          | ---                                            | A                                                                         |
| G-1            | ---                                            | A                                                                         |
| G-2            | ---                                            | A                                                                         |
| G-3            | ---                                            | A                                                                         |

\*Initial round for monitor wells MW-16 through MW-22;  
 annual round for other wells sampled.

(---) = Not sampled

A = Analyzed for volatile organic compounds by EPA Method 624/8240  
 and for pesticides by EPA Method 608/8080

B = Analyzed for nitrates and common ions



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TABLE 1 (continued)  
 SUMMARY OF MONITOR WELL SAMPLING, APRIL 1990  
 Page 3

.....DATES OF SAMPLING ROUND.....

| <u>WELL ID</u> | <u>APRIL 5-6, 1990</u><br><u>INITIAL ROUND</u> | <u>APRIL 16-21, 1990</u><br><u>ANNUAL ROUND/</u><br><u>INITIAL ROUND*</u> |
|----------------|------------------------------------------------|---------------------------------------------------------------------------|
| G-4            | ---                                            | A                                                                         |
| G-5            | ---                                            | A                                                                         |
| G-6            | ---                                            | A                                                                         |
| G-7            | ---                                            | A                                                                         |
| G-8            | ---                                            | A                                                                         |
| G-9            | ---                                            | A                                                                         |
| G-11           | ---                                            | A                                                                         |
| G-12           | ---                                            | A                                                                         |
| G-13           | ---                                            | A                                                                         |
| LG-1           | ---                                            | A                                                                         |
| LG-2           | ---                                            | A                                                                         |
| LW-1           | ---                                            | A                                                                         |
| LW-2           | ---                                            | A                                                                         |
| LW-3           | ---                                            | A                                                                         |

\*Initial round for monitor wells MW-16 through MW-22;  
 annual round for other wells sampled.

(---) = Not sampled

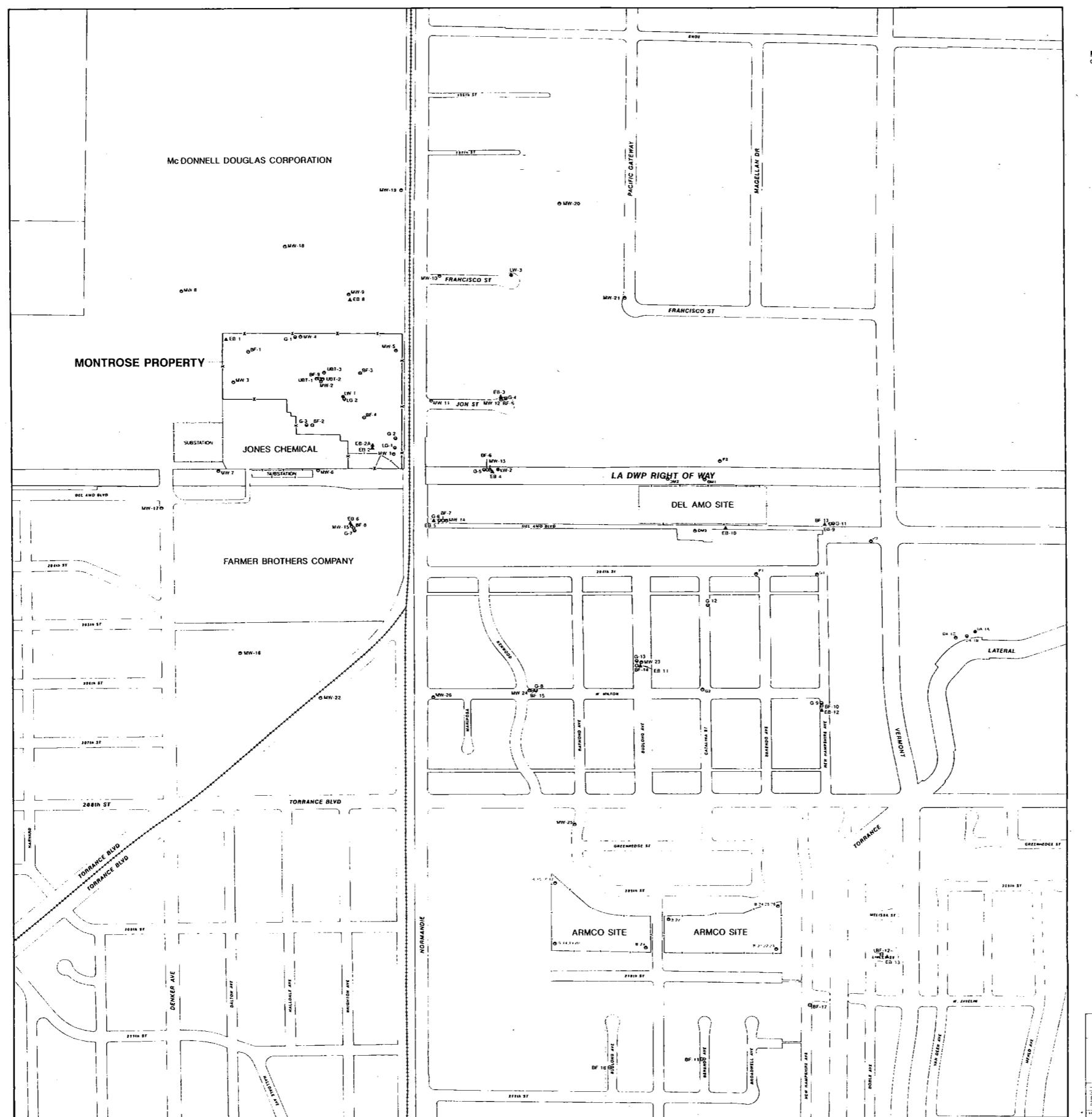
A = Analyzed for volatile organic compounds by EPA Method 624/8240  
 and for pesticides by EPA Method 608/8080

B = Analyzed for nitrates and common ions



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Illustrations



Appendix A



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APPENDIX A

INITIAL GROUNDWATER SAMPLING ROUND,  
APRIL 5-6, 1990



## APPENDIX A

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- A-9 IDENTIFICATION OF MCDONNELL DOUGLAS SPLIT SAMPLES, APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

TABLE A-1

STATIC WATER LEVELS, APRIL 5-6, 1990,  
INITIAL GROUNDWATER SAMPLING ROUND

| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE<br/>POINT<br/>ELEVATION<br/>(feet msl)</u> | <u>DEPTH TO WATER<br/>BELOW REFERENCE<br/>POINT<br/>(feet)</u> | <u>WATER<br/>LEVEL<br/>ELEVATION<br/>(feet msl)</u> | <u>METHOD OF MEASURING</u> |
|----------------|-------------|---------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|----------------------------|
| MW-16          | 04-05-90    | 41.31                                                   | 63.04                                                          | -21.73                                              | Flat tape sounder          |
| MW-17          | 04-05-90    | 48.18                                                   | 68.83                                                          | -20.65                                              | Flat tape sounder          |
| MW-18          | 04-05-90    | 50.29                                                   | 70.69                                                          | -20.40                                              | Flat tape sounder          |
| MW-19          | 04-05-90    | 46.55                                                   | 66.90                                                          | -20.35                                              | Flat tape sounder          |
| MW-20          | 04-05-90    | 43.04                                                   | 64.14                                                          | -21.10                                              | Electric sounder           |
| MW-21          | 04-05-90    | 36.49                                                   | 57.93                                                          | -21.44                                              | Electric sounder           |
| MW-22          | 04-05-90    | 41.85                                                   | 63.79                                                          | -21.94                                              | Flat tape sounder          |

msl = Mean sea level



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TABLE A-2  
SAMPLING INFORMATION, APRIL 5-6, 1990,  
INITIAL GROUNDWATER SAMPLING ROUND

| <u>WELL ID</u> | <u>SAMPLE DATE</u> | <u>TIME PUMP ON</u> | <u>TIME OF SAMPLING</u> | <u>AVERAGE DISCHARGE RATE (gpm)</u> | <u>NUMBER OF GALLONS PER CASING VOLUME</u> | <u>NUMBER OF GALLONS PURGED PRIOR TO SAMPLING</u> | <u>ELECTRICAL CONDUCTIVITY (umhos/cm)</u> | <u>pH</u> | <u>TEMPERATURE (°C)</u> |
|----------------|--------------------|---------------------|-------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------|-------------------------------------------|-----------|-------------------------|
| MW-16          | 04-05-90           | 11:08               | 11:50                   | 0.59                                | 7.5                                        | 23.0                                              | 1,400                                     | 7.1       | 21.6                    |
| MW-17          | 04-05-90           | 11:50               | 12:38                   | 0.35                                | 6.6                                        | 20.0                                              | 1,900                                     | 6.0       | 22.0                    |
| MW-18          | 04-05-90           | 14:59               | 15:47                   | 0.42                                | 7.2                                        | 22.0                                              | 690                                       | 6.0       | 22.5                    |
| MW-19          | 04-05-90           | 16:53               | 17:50                   | 0.36                                | 6.8                                        | 21.0                                              | 1,110                                     | 6.0       | 20.5                    |
| MW-20          | 04-06-90           | 13:10               | 14:40                   | 0.36                                | 1.8                                        | 30.0*                                             | 2,250                                     | 7.0       | 21.5                    |
| MW-21          | 04-05-90           | 15:43               | 16:35                   | 0.40                                | 6.5                                        | 20.0                                              | 2,300                                     | 6.7       | 19.9                    |
| MW-22          | 04-05-90           | 08:22               | 09:22                   | 0.26                                | 5.3                                        | 16.0                                              | 1,400                                     | 7.1       | 20.7                    |

\*Purging prior to sampling included removal of water equivalent in volume to that introduced during drilling

gpm = Gallons per minute  
umhos/cm = Micromhos per centimeter  
°C = Degrees Celsius



TABLE A-3  
IDENTIFICATION OF FIELD DUPLICATE SAMPLES  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>SAMPLE DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> | <u>DUPLICATE SAMPLE ID</u> | <u>FICTITIOUS SAMPLE TIME</u> |
|--------------------|------------------------|--------------------|----------------------------|-------------------------------|
| 04-05-90           | MW-22                  | 09:22              | MW-2200                    | 08:30                         |

NOTE: Duplicate samples submitted to Brown and Caldwell Laboratories  
for EPA Methods 608/8080 and 624/8240 analyses



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TABLE A-4  
IDENTIFICATION OF LABORATORY SPLIT SAMPLES  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>SAMPLE DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> |
|--------------------|------------------------|--------------------|
| 04-05-90           | MW-22                  | 09:22              |

NOTE: Split samples submitted to Analytical Technologies, Inc. for  
EPA Methods 608/8080 and 624/8240 analyses



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TABLE A-5  
IDENTIFICATION OF FIELD BLANKS  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>SAMPLE DATE</u> | <u>FICTITIOUS SAMPLE TIME</u> | <u>SAMPLE ID</u> | <u>BLANK WATER SOURCE</u> | <u>SAMPLE PREPARATION LOCATION</u> |
|--------------------|-------------------------------|------------------|---------------------------|------------------------------------|
| 04-05-90           | 08:00                         | WB-1             | Brown and Caldwell        | MW-22                              |

NOTE: Field blank sample submitted to Brown and Caldwell Laboratories  
for EPA Methods 608/8080 and 624/8240 analyses



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TABLE A-6  
IDENTIFICATION OF TRIP BLANKS  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>SAMPLE DATE</u> | <u>FICTITIOUS SAMPLE TIME</u> | <u>SAMPLE ID</u> | <u>SAMPLE PREPARED BY</u> | <u>LABORATORY PREPARATION DATE</u> |
|--------------------|-------------------------------|------------------|---------------------------|------------------------------------|
| 04-05-90           | 08:45                         | TB-1             | Brown and Caldwell        | 02-16-90                           |

NOTE: Trip blank sample submitted to Brown and Caldwell Laboratories  
for EPA Method 624/8240 analysis



HARGIS + ASSOCIATES, INC.

TABLE A-7  
WEATHER CONDITIONS, APRIL 5-6, 1990,  
INITIAL GROUNDWATER SAMPLING ROUND

| <u>DATE</u> | <u>TIME</u> | <u>WELL ID</u> | <u>WEATHER CONDITIONS</u>                       |
|-------------|-------------|----------------|-------------------------------------------------|
| 04-05-90    | 11:25       | MW-16          | Overcast, 70°F, no wind                         |
| 04-05-90    | 12:40       | MW-17          | Cloudy, 72°F, 5 mph wind from southwest         |
| 04-05-90    | 16:00       | MW-18          | Clear, 70°F, 20 mph wind from west              |
| 04-05-90    | 18:00       | MW-19          | Clear, 65°F, 5 mph wind from south              |
| 04-06-90    | 13:35       | MW-20          | Overcast, 70°F, no wind                         |
| 04-05-90    | 15:45       | MW-21          | Partly cloudy, 72°F, 10 mph wind from southwest |
| 04-05-90    | 08:30       | MW-22          | Overcast, 70°F, no wind                         |

mph = Miles per hour  
 °F = Degrees Fahrenheit



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TABLE A-8  
ELECTRICAL CONDUCTIVITY METER CALIBRATIONS  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>DATE</u> | <u>TIME</u> | <u>CALIBRATION<br/>SOLUTION<br/>CONCENTRATION*</u><br>(umhos/cm) | <u>CORRESPONDING<br/>EC METER<br/>READING**</u><br>(umhos/cm) | <u>TEMPERATURE<br/>OF SOLUTION<br/>(°C)</u> |
|-------------|-------------|------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------|
| 04-05-90    | 07:45       | 1,000                                                            | 810                                                           | 19.0                                        |
| 04-05-90    | 07:45       | 10,000                                                           | 7,500                                                         | 19.0                                        |
| 04-05-90    | 10:20       | 1,000                                                            | 920                                                           | 23.0                                        |
| 04-05-90    | 10:20       | 10,000                                                           | 9,000                                                         | 23.0                                        |
| 04-06-90    | 09:50       | 1,000                                                            | 790                                                           | 17.6                                        |
| 04-06-90    | 09:50       | 10,000                                                           | 8,000                                                         | 17.6                                        |

\*Yellow Springs Instrument (YSI) conductivity calibration solution values are 1,000 and 10,000 umhos/cm when measured at 25°C

\*\*YSI Model 33 S-C-T meter

EC = Electrical conductivity  
umhos/cm = Micromhos per centimeter  
°C = Degrees Celsius



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TABLE A-9

IDENTIFICATION OF MCDONNELL DOUGLAS SPLIT SAMPLES  
APRIL 5-6, 1990, INITIAL GROUNDWATER SAMPLING ROUND

| <u>DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> | <u>NUMBER OF CONTAINERS</u> | <u>TYPE OF CONTAINERS</u>  | <u>SAMPLES PROVIDED TO</u> |
|-------------|------------------------|--------------------|-----------------------------|----------------------------|----------------------------|
| 04-05-90    | MW-18                  | 15:47              | 2                           | 40-milliliter VOA vial     | D. Palacios,<br>DAC        |
|             |                        |                    | 2                           | 1-liter amber glass bottle |                            |
|             |                        |                    | 1                           | 1/2-gallon plastic bottle  |                            |
|             |                        |                    | 1                           | 125-ml plastic bottle      |                            |
| 04-05-90    | MW-19                  | 16:53              | 2                           | 40-milliliter VOA vial     | D. Palacios,<br>DAC        |
|             |                        |                    | 2                           | 1-liter amber glass bottle |                            |
|             |                        |                    | 1                           | 1/2-gallon plastic bottle  |                            |
|             |                        |                    | 1                           | 125-ml plastic bottle      |                            |

VOA = Volatile organic analysis  
 DAC = Douglas Aircraft Company



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Appendix B



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APPENDIX B

INITIAL GROUNDWATER SAMPLING ROUND FOR  
WELLS MW-16 THROUGH MW-22 AND ANNUAL GROUNDWATER  
SAMPLING ROUND, APRIL 16-21, 1990



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- B-3 IDENTIFICATION OF FIELD DUPLICATE SAMPLES, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-4 IDENTIFICATION OF LABORATORY SPLIT SAMPLE, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-5 IDENTIFICATION OF FIELD BLANKS, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-6 IDENTIFICATION OF TRIP BLANKS, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-7 WEATHER CONDITIONS, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-8 ELECTRICAL CONDUCTIVITY METER CALIBRATIONS, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS
- B-9 IDENTIFICATION OF MCDONNELL DOUGLAS SPLIT SAMPLES, APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

TABLE B-1

STATIC WATER LEVELS, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE POINT ELEVATION<br/>(feet msl)</u> | <u>DEPTH TO WATER BELOW REFERENCE POINT<br/>(feet)</u> | <u>WATER LEVEL ELEVATION<br/>(feet msl)</u> | <u>METHOD OF MEASURING</u>            |
|----------------|-------------|-------------------------------------------------|--------------------------------------------------------|---------------------------------------------|---------------------------------------|
| MW-1           | 04-16-90    | 42.83                                           | 64.61                                                  | -21.78                                      | Flat tape sounder                     |
| MW-2           | 04-16-90    | 48.79                                           | 69.98                                                  | -21.19                                      | Steel tape                            |
| MW-3           | 04-16-90    | 47.41                                           | 67.93                                                  | -20.52                                      | Flat tape sounder                     |
| MW-4           | 04-16-90    | 46.69                                           | 67.53                                                  | -20.84                                      | Flat tape sounder                     |
| MW-5           | 04-16-90    | 44.95                                           | 66.01                                                  | -21.06                                      | Flat tape sounder                     |
| MW-6           | 04-16-90    | 45.68                                           | 66.87                                                  | -21.19                                      | Flat tape sounder                     |
| MW-7           | 04-16-90    | 47.42                                           | 67.77 (product)<br>68.32 (water)                       | NA<br>-20.46(b)                             | Interface probe(a)<br>Interface probe |
| MW-8           | 04-16-90    | 49.09                                           | 69.54                                                  | -20.45                                      | Flat tape sounder                     |
| MW-9           | 04-16-90    | 48.67                                           | 69.46                                                  | -20.79                                      | Flat tape sounder                     |
| MW-10          | 04-16-90    | 43.20                                           | 63.99                                                  | -20.79                                      | Flat tape sounder                     |
| MW-11          | 04-16-90    | 42.69                                           | 64.06                                                  | -21.37                                      | Flat tape sounder                     |
| MW-12          | 04-16-90    | 40.17                                           | 61.68                                                  | -21.51                                      | Flat tape sounder                     |

(a) Product thickness measured with ORS interface probe

(b) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$  $\gamma_s$  = Estimated specific gravity of free product = .80(c) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$  $\gamma_s$  = Estimated specific gravity of free product = .88

msl = Mean sea level

NA = Not applicable

DTW = Depth to water

DTFP = Depth to free product



HARGIS + ASSOCIATES, INC.

TABLE B-1 (continued)  
 STATIC WATER LEVELS, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
 Page 2

| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE POINT ELEVATION (feet msl)</u> | <u>DEPTH TO WATER BELOW REFERENCE POINT (feet)</u> | <u>WATER LEVEL ELEVATION (feet msl)</u> | <u>METHOD OF MEASURING</u>            |
|----------------|-------------|---------------------------------------------|----------------------------------------------------|-----------------------------------------|---------------------------------------|
| MW-13          | 04-16-90    | 42.34                                       | 64.17                                              | -21.83                                  | Flat tape sounder                     |
| MW-14          | 04-16-90    | 43.13                                       | 65.09                                              | -21.96                                  | Flat tape sounder                     |
| MW-15          | 04-16-90    | 40.51                                       | 62.44                                              | -21.93                                  | Flat tape sounder                     |
| MW-16          | 04-16-90    | 41.31                                       | 62.91                                              | -21.60                                  | Flat tape sounder                     |
| MW-17          | 04-16-90    | 48.18                                       | 68.73                                              | -20.55                                  | Flat tape sounder                     |
| MW-18          | 04-16-90    | 50.29                                       | 70.58                                              | -20.29                                  | Flat tape sounder                     |
| MW-19          | 04-16-90    | 46.55                                       | 66.77                                              | -20.22                                  | Flat tape sounder                     |
| MW-20          | 04-16-90    | 43.04                                       | 63.44 (product)<br>64.52 (water)                   | NA<br>-20.53(c)                         | Interface probe(a)<br>Interface probe |
| MW-21          | 04-16-90    | 36.49                                       | 57.83                                              | -21.34                                  | Interface probe                       |
| MW-22          | 04-16-90    | 41.85                                       | 63.72                                              | -21.87                                  | Flat tape sounder                     |
| MW-23          | 04-16-90    | 36.35                                       | 59.22                                              | -22.87                                  | Flat tape sounder                     |
| MW-24          | 04-16-90    | 22.40                                       | 44.57                                              | -22.17                                  | Flat tape sounder                     |

(a) Product thickness measured with ORS interface probe

(b) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$

$\gamma_s$  = Estimated specific gravity of free product = .80

(c) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$

$\gamma_s$  = Estimated specific gravity of free product = .88

msl = Mean sea level

NA = Not applicable

DTW = Depth to water

DTFP = Depth to free product



HARGIS + ASSOCIATES, INC.

TABLE B-1 (continued)

STATIC WATER LEVELS, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

Page 3

| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE<br/>POINT<br/>ELEVATION<br/>(feet msl)</u> | <u>DEPTH TO WATER<br/>BELOW REFERENCE<br/>POINT<br/>(feet)</u> | <u>WATER<br/>LEVEL<br/>ELEVATION<br/>(feet msl)</u> | <u>METHOD OF MEASURING</u> |
|----------------|-------------|---------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|----------------------------|
| MW-25          | 04-16-90    | 31.98                                                   | 55.31                                                          | -23.33                                              | Flat tape sounder          |
| MW-26          | 04-16-90    | 39.17                                                   | 61.35                                                          | -22.18                                              | Flat tape sounder          |
| BF-1           | 04-16-90    | 48.28                                                   | 68.58                                                          | -20.30                                              | Flat tape sounder          |
| BF-2           | 04-16-90    | 49.49                                                   | 70.01                                                          | -20.52                                              | Flat tape sounder          |
| BF-3           | 04-16-90    | 48.27                                                   | 68.83                                                          | -20.56                                              | Flat tape sounder          |
| BF-4           | 04-16-90    | 47.67                                                   | 68.39                                                          | -20.72                                              | Flat tape sounder          |
| BF-5           | 04-16-90    | 39.37                                                   | 60.86                                                          | -21.49                                              | Flat tape sounder          |
| BF-6           | 04-16-90    | 41.70                                                   | 63.48                                                          | -21.78                                              | Flat tape sounder          |
| BF-7           | 04-16-90    | 42.64                                                   | 64.13                                                          | -21.49                                              | Flat tape sounder          |
| BF-8           | 04-16-90    | 39.72                                                   | 60.77                                                          | -21.05                                              | Flat tape sounder          |
| BF-9           | 04-16-90    | 48.69                                                   | 69.10                                                          | -20.41                                              | Flat tape sounder          |
| BF-10          | 04-16-90    | 28.67                                                   | 52.64                                                          | -23.97                                              | Flat tape sounder          |
| BF-11          | 04-16-90    | 33.66                                                   | 58.64                                                          | -24.98                                              | Flat tape sounder          |

- (a) Product thickness measured with ORS interface probe  
 (b) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .80  
 (c) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .88

msl = Mean sea level

NA = Not applicable

DTW = Depth to water

DTFP = Depth to free product



HARGIS + ASSOCIATES, INC.

TABLE B-1 (continued)

STATIC WATER LEVELS, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

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| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE<br/>POINT<br/>ELEVATION<br/>(feet msl)</u> | <u>DEPTH TO WATER<br/>BELOW REFERENCE<br/>POINT<br/>(feet)</u> | <u>WATER<br/>LEVEL<br/>ELEVATION<br/>(feet msl)</u> | <u>METHOD OF MEASURING</u> |
|----------------|-------------|---------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|----------------------------|
| BF-12          | 04-16-90    | 22.20                                                   | 47.50                                                          | -25.30                                              | Flat tape sounder          |
| BF-13          | 04-16-90    | 29.52                                                   | 52.66                                                          | -23.14                                              | Flat tape sounder          |
| BF-14          | 04-16-90    | 36.30                                                   | 59.03                                                          | -22.73                                              | Flat tape sounder          |
| BF-15          | 04-16-90    | 22.82                                                   | 45.29                                                          | -22.47                                              | Flat tape sounder          |
| BF-16          | 04-16-90    | 35.31                                                   | 59.83                                                          | -24.52                                              | Flat tape sounder          |
| BF-17          | 04-16-90    | 22.67                                                   | 47.82                                                          | -25.15                                              | Flat tape sounder          |
| G-1            | 04-16-90    | 46.66                                                   | 67.48                                                          | -20.82                                              | Flat tape sounder          |
| G-2            | 04-16-90    | 43.46                                                   | 65.08                                                          | -21.62                                              | Flat tape sounder          |
| G-3            | 04-16-90    | 49.69                                                   | 70.71                                                          | -21.02                                              | Flat tape sounder          |
| G-4            | 04-16-90    | 39.70                                                   | 61.68                                                          | -21.98                                              | Flat tape sounder          |
| G-5            | 04-16-90    | 41.71                                                   | 63.79                                                          | -22.08                                              | Flat tape sounder          |
| G-6            | 04-16-90    | 42.54                                                   | 64.50                                                          | -21.96                                              | Flat tape sounder          |
| G-7            | 04-16-90    | 39.88                                                   | 61.32                                                          | -21.44                                              | Flat tape sounder          |

- (a) Product thickness measured with ORS interface probe
- (b) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .80
- (c) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .88

msl = Mean sea level

NA = Not applicable

DTW = Depth to water

DTFP = Depth to free product



HARGIS + ASSOCIATES, INC.

TABLE B-1 (continued)

STATIC WATER LEVELS, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
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| <u>WELL ID</u> | <u>DATE</u> | <u>REFERENCE POINT ELEVATION (feet msl)</u> | <u>DEPTH TO WATER BELOW REFERENCE POINT (feet)</u> | <u>WATER LEVEL ELEVATION (feet msl)</u> | <u>METHOD OF MEASURING</u> |
|----------------|-------------|---------------------------------------------|----------------------------------------------------|-----------------------------------------|----------------------------|
| G-8            | 04-16-90    | 22.52                                       | 45.68                                              | -23.16                                  | Flat tape sounder          |
| G-9            | 04-16-90    | 28.48                                       | 53.56                                              | -25.08                                  | Flat tape sounder          |
| G-11           | 04-16-90    | 29.48                                       | 54.10                                              | -24.62                                  | Flat tape sounder          |
| G-12           | 04-19-90    | 25.85                                       | 50.08                                              | -24.23                                  | Electric sounder           |
| G-13           | 04-16-90    | 36.09                                       | 59.80                                              | -23.71                                  | Flat tape sounder          |
| LG-1           | 04-16-90    | 43.24                                       | 64.85                                              | -21.61                                  | Flat tape sounder          |
| LG-2           | 04-16-90    | 44.61                                       | 65.67                                              | -21.06                                  | Flat tape sounder          |
| LW-1           | 04-16-90    | 45.02                                       | 77.72                                              | -32.70                                  | Flat tape sounder          |
| LW-2           | 04-16-90    | 42.07                                       | 75.03                                              | -32.96                                  | Flat tape sounder          |
| LW-3           | 04-16-90    | 40.33                                       | 73.10                                              | -32.77                                  | Flat tape sounder          |

- (a) Product thickness measured with ORS interface probe
- (b) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .80
- (c) Equivalent Piezometric Head Elevation = DTW - (DTW-DTFP) x  $\gamma_s$   
 $\gamma_s$  = Estimated specific gravity of free product = .88

msl = Mean sea level

NA = Not applicable

DTW = Depth to water

DTFP = Depth to free product



HARGIS + ASSOCIATES, INC.

TABLE B-2  
SAMPLING INFORMATION, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>WELL ID</u> | <u>SAMPLE DATE</u> | <u>TIME SAMPLE PUMP ON</u> | <u>TIME OF SAMPLING</u> | <u>AVERAGE DISCHARGE RATE (gpm)</u> | <u>NUMBER OF GALLONS PER CASING VOLUME</u> | <u>NUMBER OF GALLONS PURGED PRIOR TO SAMPLING</u> | <u>ELECTRICAL CONDUCTIVITY (umhos/cm)</u> | <u>pH</u> | <u>TEMPERATURE (°C)</u> |
|----------------|--------------------|----------------------------|-------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------|-------------------------------------------|-----------|-------------------------|
| MW-1           | 04-20-90           | 19:28                      | 20:08                   | 0.44                                | 5.3                                        | 16.0                                              | 7,780                                     | 6.7       | 22.3                    |
| MW-3           | 04-20-90           | 19:05                      | 19:36                   | 0.34                                | 4.2                                        | 12.5                                              | 1,010                                     | 7.0       | 21.0                    |
| MW-4           | 04-20-90           | 13:28                      | 14:44                   | 0.19                                | 4.8                                        | 15.0                                              | 2,400                                     | 6.8       | 22.3                    |
| MW-5           | 04-21-90           | 14:17                      | 15:14                   | 2.2                                 | 4.2                                        | 13.5                                              | 3,300                                     | 7.0       | 22.5                    |
| MW-6           | 04-20-90           | 15:52                      | 16:20                   | 1.0                                 | 8.7                                        | 26.0                                              | 6,100                                     | 6.8       | 23.0                    |
| MW-7           | 04-20-90           | 17:09                      | 18:30                   | 0.33                                | 8.0                                        | 27.0                                              | ---                                       | ---       | ---                     |
| MW-8           | 04-20-90           | 12:02                      | 13:00                   | 0.38                                | 7.2                                        | 21.5                                              | 860                                       | 7.0       | 24.0                    |
| MW-9           | 04-20-90           | 13:34                      | 14:30                   | 0.36                                | 7.0                                        | 21.0                                              | 3,190                                     | 7.0       | 23.0                    |
| MW-10          | 04-20-90           | 08:38                      | 09:35                   | 0.45                                | 8.7                                        | 26.0                                              | 2,100                                     | 7.1       | 21.9                    |
| MW-11          | 04-18-90           | 13:55                      | 15:17                   | 0.30                                | 8.4                                        | 25.5                                              | 3,350                                     | 7.0       | 23.0                    |
| MW-12          | 04-18-90           | 09:18                      | 10:15                   | 0.57                                | 9.2                                        | 28.0                                              | 1,750                                     | 6.0       | 21.5                    |
| MW-13          | 04-21-90           | 09:38                      | 11:29                   | 0.54                                | 8.3                                        | 26.0                                              | 2,800                                     | 6.8       | 21.2                    |
| MW-14          | 04-17-90           | 18:55                      | 19:52                   | 0.28                                | 5.1                                        | 16.0                                              | 2,000                                     | 6.5       | 21.7                    |
| MW-15          | 04-18-90           | 09:25                      | 11:30                   | 0.29                                | 9.2                                        | 29.0                                              | 2,690                                     | 7.0       | 21.5                    |
| MW-16          | 04-16-90           | 13:55                      | 14:45                   | 0.48                                | 7.5                                        | 24.0                                              | 1,490                                     | 7.3       | 21.5                    |
| MW-17          | 04-16-90           | 16:02                      | 16:43                   | 0.49                                | 6.6                                        | 21.0                                              | 1,800                                     | 6.8       | 21.5                    |
| MW-18          | 04-20-90           | 08:01                      | 08:47                   | 0.36                                | 7.2                                        | 22.0                                              | 660                                       | 7.0       | 22.0                    |
| MW-19          | 04-20-90           | 10:01                      | 11:00                   | 0.32                                | 6.7                                        | 20.5                                              | 1,090                                     | 6.5       | 22.0                    |

gpm = Gallons per minute

umhos/cm = Micromhos per centimeter

°C = Degrees Celsius

(---) = Parameters were not measured in water with high target chemical concentrations in order to preserve field equipment



TABLE B-2 (continued)  
 SAMPLING INFORMATION, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
 Page 2

| <u>WELL ID</u> | <u>SAMPLE DATE</u> | <u>TIME SAMPLE PUMP ON</u> | <u>TIME OF SAMPLING</u> | <u>AVERAGE DISCHARGE RATE (gpm)</u> | <u>NUMBER OF GALLONS PER CASING VOLUME</u> | <u>NUMBER OF GALLONS PURGED PRIOR TO SAMPLING</u> | <u>ELECTRICAL CONDUCTIVITY (umhos/cm)</u> | <u>pH</u> | <u>TEMPERATURE (°C)</u> |
|----------------|--------------------|----------------------------|-------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------|-------------------------------------------|-----------|-------------------------|
| MW-22          | 04-19-90           | 12:09                      | 13:15                   | 0.26                                | 5.3                                        | 16.0                                              | 1,280                                     | 7.0       | 22.0                    |
| MW-23          | 04-18-90           | 15:50                      | 16:54                   | 0.49                                | 10.3                                       | 31.0                                              | 2,000                                     | 7.3       | 23.4                    |
| MW-24          | 04-17-90           | 11:42                      | 13:24                   | 0.38                                | 12.6                                       | 38.0                                              | 1,720                                     | 7.1       | 21.4                    |
| MW-25          | 04-17-90           | 14:56                      | 16:28                   | 0.35                                | 9.5                                        | 29.5                                              | 1,300                                     | 6.0       | 21.5                    |
| MW-26          | 04-17-90           | 17:22                      | 18:26                   | 0.42                                | 8.2                                        | 25.0                                              | 1,890                                     | 6.0       | 21.0                    |
| BF-1           | 04-18-90           | 18:13                      | 18:56                   | 8.7                                 | 35.9                                       | 122.0                                             | 1,020                                     | 6.5       | 20.5                    |
| BF-2           | 04-20-90           | 10:42                      | 10:57                   | 7.3                                 | 35.3                                       | 126.0                                             | 800                                       | 7.6       | 22.5                    |
| BF-3           | 04-20-90           | 11:54                      | 12:13                   | 7.6                                 | 35.7                                       | 163.0                                             | 1,130                                     | 7.4       | 22.7                    |
| BF-4           | 04-20-90           | 15:37                      | 15:57                   | 8.3                                 | 35.5                                       | 133.0                                             | 950                                       | 6.5       | 23.0                    |
| BF-5           | 04-18-90           | 11:06                      | 11:38                   | 7.9                                 | 46.1                                       | 174.0                                             | 580                                       | 6.0       | 21.5                    |
| BF-6           | 04-21-90           | 10:41                      | 11:05                   | 7.3                                 | 40.0                                       | 139.0                                             | 1,310                                     | 7.0       | 22.5                    |
| BF-7           | 04-17-90           | 18:55                      | 19:13                   | 7.5                                 | 33.9                                       | 135.0                                             | 1,100                                     | 7.2       | 21.9                    |
| BF-8           | 04-18-90           | 09:25                      | 09:55                   | 7.9                                 | 41.7                                       | 237.0                                             | 890                                       | 7.4       | 21.7                    |
| BF-9           | 04-19-90           | 13:57                      | 14:35                   | 7.5                                 | 86.2                                       | 276.0                                             | 730                                       | 7.5       | 21.9                    |
| BF-10          | 04-18-90           | 17:00                      | 17:28                   | 7.5                                 | 57.0                                       | 188.0                                             | 860                                       | 6.5       | 20.5                    |
| BF-11          | 04-17-90           | 16:37                      | 17:00                   | 7.0                                 | 46.3                                       | 162.0                                             | 1,210                                     | 7.1       | 21.1                    |
| BF-12          | 04-19-90           | 15:07                      | 15:32                   | 7.7                                 | 53.0                                       | 169.0                                             | 720                                       | 6.5       | 21.5                    |
| BF-13          | 04-19-90           | 09:30                      | 10:03                   | 7.7                                 | 61.1                                       | 208.0                                             | 6,100                                     | 7.0       | 21.5                    |

gpm = Gallons per minute

umhos/cm = Micromhos per centimeter

°C = Degrees Celsius

(--) = Parameters were not measured in water with high target chemical concentrations in order to preserve field equipment



TABLE B-2 (continued)

SAMPLING INFORMATION, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

Page 3

| <u>WELL ID</u> | <u>SAMPLE DATE</u> | <u>TIME SAMPLE PUMP ON</u> | <u>TIME OF SAMPLING</u> | <u>AVERAGE DISCHARGE RATE (gpm)</u> | <u>NUMBER OF GALLONS PER CASING VOLUME</u> | <u>NUMBER OF GALLONS PURGED PRIOR TO SAMPLING</u> | <u>ELECTRICAL CONDUCTIVITY (umhos/cm)</u> | <u>pH</u> | <u>TEMPERATURE (°C)</u> |
|----------------|--------------------|----------------------------|-------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------|-------------------------------------------|-----------|-------------------------|
| BF-14          | 04-18-90           | 18:02                      | 18:32                   | 6.7                                 | 44.7                                       | 210.0                                             | 750                                       | 7.6       | 20.1                    |
| BF-15          | 04-17-90           | 13:51                      | 14:15                   | 7.5                                 | 48.7                                       | 180.0                                             | 1,400                                     | 7.0       | 21.3                    |
| BF-16          | 04-17-90           | 13:35                      | 14:02                   | 8.9                                 | 45.0                                       | 195.8                                             | 880                                       | 6.0       | 22.0                    |
| BF-17          | 04-19-90           | 13:57                      | 14:20                   | 8.6                                 | 51.6                                       | 180.0                                             | 750                                       | 7.0       | 21.5                    |
| G-1            | 04-20-90           | 13:45                      | 14:16                   | 6.4                                 | 60.8                                       | 193.0                                             | 380                                       | 8.5       | 22.4                    |
| G-2            | 04-21-90           | 14:27                      | 15:16                   | 6.0                                 | 71.8                                       | 252.0                                             | 620                                       | 7.0       | 24.0                    |
| G-3            | 04-19-90           | 17:33                      | 18:02                   | 7.3                                 | 61.9                                       | 199.0                                             | 550                                       | 8.0       | 21.5                    |
| G-4            | 04-18-90           | 12:07                      | 12:41                   | 8.7                                 | 86.0                                       | 261.0                                             | 610                                       | 6.5       | 22.0                    |
| G-5            | 04-21-90           | 08:51                      | 09:26                   | 8.8                                 | 81.8                                       | 264.0                                             | 700                                       | 7.7       | 22.1                    |
| G-6            | 04-18-90           | 13:48                      | 14:20                   | 8.3                                 | 81.4                                       | 267.0                                             | 580                                       | 7.8       | 22.8                    |
| G-7            | 04-18-90           | 10:33                      | 11:05                   | 9.1                                 | 77.1                                       | 291.0                                             | 490                                       | 7.0       | 22.0                    |
| G-8            | 04-17-90           | 10:17                      | 11:08                   | 6.3                                 | 98.2                                       | 310.0                                             | 450                                       | 8.0       | 21.4                    |
| G-9            | 04-18-90           | 15:58                      | 16:45                   | 8.5                                 | 117.0                                      | 365.5                                             | 800                                       | 7.0       | 21.5                    |
| G-11           | 04-19-90           | 10:31                      | 11:13                   | 9.4                                 | 119.7                                      | 367.5                                             | 610                                       | 7.0       | 21.5                    |
| G-12           | 04-19-90           | 16:38                      | 17:25                   | 7.3                                 | 108.1                                      | 337.5                                             | 1,090                                     | 7.0       | 21.0                    |
| G-13           | 04-19-90           | 16:03                      | 16:42                   | 8.3                                 | 99.6                                       | 310.0                                             | 500                                       | 8.2       | 20.8                    |
| LG-2           | 04-19-90           | 12:15                      | 12:46                   | 8.9                                 | 90.7                                       | 276.0                                             | 390                                       | 8.0       | 22.3                    |
| LW-1           | 04-19-90           | 09:18                      | 09:45                   | 10.7                                | 87.1                                       | 290.0                                             | 390                                       | 8.5       | 22.5                    |

gpm = Gallons per minute

umhos/cm = Micromhos per centimeter

°C = Degrees Celsius

(- -) = Parameters were not measured in water with high target chemical concentrations in order to preserve field equipment



TABLE B-2 (continued)  
 SAMPLING INFORMATION, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

Page 4

| <u>WELL ID</u> | <u>SAMPLE DATE</u> | <u>TIME SAMPLE PUMP ON</u> | <u>TIME OF SAMPLING</u> | <u>AVERAGE DISCHARGE RATE (gpm)</u> | <u>NUMBER OF GALLONS PER CASING VOLUME</u> | <u>NUMBER OF GALLONS PURGED PRIOR TO SAMPLING</u> | <u>ELECTRICAL CONDUCTIVITY (umhos/cm)</u> | <u>pH</u> | <u>TEMPERATURE (°C)</u> |
|----------------|--------------------|----------------------------|-------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------|-------------------------------------------|-----------|-------------------------|
| LW-2           | 04-21-90           | 12:01                      | 12:55                   | 8.6                                 | 129.7                                      | 404.0                                             | 385                                       | 6.5       | 22.5                    |
| LW-3           | 04-20-90           | 17:08                      | 17:58                   | 9.0                                 | 136.8                                      | 432.0                                             | 371                                       | 7.0       | 22.0                    |

gpm = Gallons per minute

umhos/cm = Micromhos per centimeter

°C = Degrees Celsius

(---) = Parameters were not measured in water with high target chemical concentrations in order to preserve field equipment



TABLE B-3

IDENTIFICATION OF FIELD DUPLICATE SAMPLES  
APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>SAMPLE DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> | <u>DUPLICATE SAMPLE ID</u> | <u>FICTITIOUS SAMPLE TIME</u> |
|--------------------|------------------------|--------------------|----------------------------|-------------------------------|
| 04-16-90           | MW-16                  | 14:45              | MW-1600                    | 14:50                         |
| 04-17-90           | BF-11                  | 17:00              | BF-1100                    | 17:15                         |
| 04-18-90           | MW-12                  | 10:15              | MW-1200                    | 10:00                         |
| 04-19-90           | LW-1                   | 09:45              | LW-100                     | 09:55                         |
| 04-20-90           | MW-18                  | 08:47              | MW-1880                    | 09:15                         |
| 04-21-90           | G-5                    | 09:26              | G-500                      | 09:30                         |

NOTE: Duplicate samples submitted to Brown and Caldwell Laboratories  
for EPA Methods 608/8080 and 624/8240 analyses



HARGIS + ASSOCIATES, INC.

TABLE B-4  
IDENTIFICATION OF LABORATORY SPLIT SAMPLES  
APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>SAMPLE DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> |
|--------------------|------------------------|--------------------|
| 04-16-90           | MW-16                  | 14:45              |
| 04-17-90           | BF-11                  | 17:00              |
| 04-18-90           | MW-12                  | 10:15              |
| 04-19-90           | LW-1                   | 09:45              |
| 04-20-90           | MW-18                  | 08:47              |
| 04-21-90           | G-5                    | 09:26              |

NOTE: Split samples submitted to Analytical Technologies, Inc. for  
EPA Methods 608/8080 and 624/8240 analyses



HARGIS + ASSOCIATES, INC.

TABLE B-5

IDENTIFICATION OF FIELD BLANKS  
 APRIL 16-21, 1990, INITIAL AND ANNUAL  
 GROUNDWATER SAMPLING ROUNDS

| <u>SAMPLE DATE</u> | <u>FICTITIOUS SAMPLE TIME</u> | <u>SAMPLE ID</u> | <u>BLANK WATER SOURCE</u> | <u>SAMPLE PREPARATION LOCATION</u> |
|--------------------|-------------------------------|------------------|---------------------------|------------------------------------|
| 04-16-90           | 15:00                         | WB-1             | Brown and Caldwell        | MW-16                              |
| 04-17-90           | 16:45                         | WB-1             | Brown and Caldwell        | BF-11                              |
| 04-18-90           | 09:30                         | WB-1             | Brown and Caldwell        | MW-12                              |
| 04-19-90           | 10:10                         | WB-1             | Brown and Caldwell        | LW-1                               |
| 04-20-90           | 08:45                         | WB-1             | Brown and Caldwell        | MW-18                              |
| 04-21-90           | 10:00                         | WB-1             | Brown and Caldwell        | G-5                                |

NOTE: Field blank sample submitted to Brown and Caldwell Laboratories  
 for EPA Methods 608/8080 and 624/8240 analyses



HARGIS + ASSOCIATES, INC.

TABLE B-6

IDENTIFICATION OF TRIP BLANKS  
 APRIL 16-21, 1990, INITIAL AND ANNUAL  
 GROUNDWATER SAMPLING ROUNDS

| <u>SAMPLE DATE</u> | <u>FICTITIOUS SAMPLE TIME</u> | <u>SAMPLE ID</u> | <u>SAMPLE PREPARED BY</u> | <u>LABORATORY PREPARATION DATE</u> |
|--------------------|-------------------------------|------------------|---------------------------|------------------------------------|
| 04-16-90           | 13:20                         | TB-1             | Brown and Caldwell        | 04-13-90                           |
| 04-17-90           | 13:00                         | TB-1             | Brown and Caldwell        | 04-13-90                           |
| 04-17-90           | 20:00                         | TB-2             | Brown and Caldwell        | 04-13-90                           |
| 04-18-90           | 09:50                         | TB-1             | Brown and Caldwell        | 04-18-90                           |
| 04-19-90           | 08:15                         | TB-1             | Brown and Caldwell        | 04-18-90                           |
| 04-19-90           | 09:30                         | TB-2             | Brown and Caldwell        | 04-18-90                           |
| 04-20-90           | 08:30                         | TB-1             | Brown and Caldwell        | 04-18-90                           |
| 04-20-90           | 08:00                         | TB-2             | Brown and Caldwell        | 04-18-90                           |
| 04-21-90           | 09:00                         | TB-1             | Brown and Caldwell        | 04-18-90                           |

NOTE: Trip blank samples were submitted to Brown and Caldwell Laboratories for EPA Method 624/8240 analysis



HARGIS + ASSOCIATES, INC.

TABLE B-7

WEATHER CONDITIONS, APRIL 16-21, 1990,  
INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>DATE</u> | <u>TIME</u> | <u>WELL ID</u> | <u>WEATHER CONDITIONS</u>                             |
|-------------|-------------|----------------|-------------------------------------------------------|
| 04-20-90    | 20:08       | MW-1           | Hazy, 60°F, 10 to 15 mph wind from west               |
| 04-20-90    | 19:36       | MW-3           | Clear, 60°F, 10 mph wind from west                    |
| 04-20-90    | 14:44       | MW-4           | Partly cloudy, 70°F, 5 to 10 mph wind from west       |
| 04-21-90    | 15:14       | MW-5           | Partly cloudy, 75°F, 10 to 15 mph wind from southwest |
| 04-20-90    | 16:20       | MW-6           | Hazy, 75°F, 5 mph wind from west                      |
| 04-20-90    | 18:30       | MW-7           | Hazy, 70°F, 5 to 10 mph wind from west                |
| 04-20-90    | 13:00       | MW-8           | Partly cloudy, 65°F, 5 mph wind from northwest        |
| 04-20-90    | 14:30       | MW-9           | Hazy, 70°F, 10 to 15 mph wind from west               |
| 04-20-90    | 09:35       | MW-10          | Overcast, 65°F, no wind                               |
| 04-18-90    | 15:17       | MW-11          | Clear, 65°F, 20 mph wind from west                    |
| 04-18-90    | 10:15       | MW-12          | Overcast, 70°F, 0 to 5 mph wind from east             |
| 04-21-90    | 11:29       | MW-13          | Partly cloudy, 70°F, less than 5 mph wind from west   |
| 04-17-90    | 19:52       | MW-14          | Partly cloudy, 65°F, no wind                          |
| 04-18-90    | 11:30       | MW-15          | Overcast, 70°F, no wind                               |
| 04-16-90    | 14:45       | MW-16          | Cloudy, 65°F, 15 mph wind from south                  |

mph = Miles per hour

°F = Degrees Fahrenheit



HARGIS + ASSOCIATES, INC.

TABLE B-7 (continued)  
 WEATHER CONDITIONS, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
 Page 2

| <u>DATE</u> | <u>TIME</u> | <u>WELL ID</u> | <u>WEATHER CONDITIONS</u>                            |
|-------------|-------------|----------------|------------------------------------------------------|
| 04-16-90    | 16:43       | MW-17          | Cloudy, 65°F, 10 mph wind from south                 |
| 04-20-90    | 08:47       | MW-18          | Overcast, 65°F, 0 to 5 mph wind from southwest       |
| 04-20-90    | 11:00       | MW-19          | Cloudy, 60°F, 0 to 5 mph wind from south             |
| 04-19-90    | 13:15       | MW-22          | Slightly overcast, 65°F, 15 to 20 mph wind from west |
| 04-18-90    | 16:54       | MW-23          | Clear, 70°F, 5 mph wind from west                    |
| 04-17-90    | 13:24       | MW-24          | Light clouds, 72°F, 5 mph wind from east             |
| 04-17-90    | 16:28       | MW-25          | Clear, 75°F, 10 mph wind from south                  |
| 04-17-90    | 18:26       | MW-26          | Partly cloudy, 65°F, 5 to 10 mph wind from west      |
| 04-18-90    | 18:56       | BF-1           | Clear, 60°F, 5 mph wind from west                    |
| 04-20-90    | 10:57       | BF-2           | Cloudy, 65°F, 10 mph wind from west                  |
| 04-20-90    | 12:13       | BF-3           | Overcast, 65°F, 10 mph wind from west                |
| 04-20-90    | 15:57       | BF-4           | Hazy, 65°F, 20 mph wind from west                    |
| 04-18-90    | 11:38       | BF-5           | Overcast, 65°F, 5 mph wind from west                 |
| 04-21-90    | 11:05       | BF-6           | Partly cloudy, 65°F, 5 mph wind from west            |
| 04-17-90    | 19:13       | BF-7           | Partly cloudy, 65°F, no wind                         |
| 04-18-90    | 09:55       | BF-8           | Overcast, 65°F, no wind                              |
| 04-19-90    | 14:35       | BF-9           | Slightly overcast, 70°F, 15 to 20 mph wind from west |

mph = Miles per hour  
 °F = Degrees Fahrenheit



HARGIS + ASSOCIATES, INC.

TABLE B-7 (continued)  
 WEATHER CONDITIONS, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
 Page 3

| <u>DATE</u> | <u>TIME</u> | <u>WELL ID</u> | <u>WEATHER CONDITIONS</u>                       |
|-------------|-------------|----------------|-------------------------------------------------|
| 04-18-90    | 17:28       | BF-10          | Clear, 65°F, 0 to 5 mph wind from west          |
| 04-17-90    | 17:00       | BF-11          | Partly cloudy, 75°F, 10 mph wind from southwest |
| 04-19-90    | 15:32       | BF-12          | Clear, 65°F, 10 mph wind from west              |
| 04-19-90    | 10:03       | BF-13          | Cloudy, 65°F, 5 to 10 mph wind from west        |
| 04-18-90    | 18:32       | BF-14          | Hazy, 65°F, 10 mph wind from west               |
| 04-17-90    | 14:15       | BF-15          | Light clouds, 72°F, 5 mph wind from east        |
| 04-17-90    | 14:02       | BF-16          | Clear, 70°F, 5 to 10 mph wind from southeast    |
| 04-19-90    | 14:20       | BF-17          | Hazy, 70°F, 0 to 5 mph wind from north          |
| 04-20-90    | 14:16       | G-1            | Partly cloudy, 70°F, 10 mph wind from west      |
| 04-21-90    | 15:16       | G-2            | Clear, 70°F, 15 mph wind from west              |
| 04-19-90    | 18:02       | G-3            | Clear, 70°F, 15 mph wind from west              |
| 04-18-90    | 12:41       | G-4            | Overcast, 65°F, 0 to 5 mph wind from east       |
| 04-21-90    | 09:26       | G-5            | Cloudy, 60°F, 5 to 10 mph wind from north       |
| 04-18-90    | 14:20       | G-6            | Partly cloudy, 70°F, 5 mph wind from west       |
| 04-18-90    | 11:05       | G-7            | Overcast, 65°F, no wind                         |

mph = Miles per hour  
 °F = Degrees Fahrenheit



HARGIS + ASSOCIATES, INC.

TABLE B-7 (continued)  
 WEATHER CONDITIONS, APRIL 16-21, 1990,  
 INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS  
 Page 4

| <u>DATE</u> | <u>TIME</u> | <u>WELL ID</u> | <u>WEATHER CONDITIONS</u>                      |
|-------------|-------------|----------------|------------------------------------------------|
| 04-17-90    | 11:08       | G-8            | Partly cloudy, 65°F, 0 to 5 mph wind from west |
| 04-18-90    | 16:45       | G-9            | Clear, 70°F, 0 to 5 mph wind from southeast    |
| 04-19-90    | 11:13       | G-11           | Overcast, 65°F, 0 to 5 mph wind from south     |
| 04-19-90    | 17:25       | G-12           | Clear, 60°F, 15 mph wind from west             |
| 04-19-90    | 16:42       | G-13           | Clear, 70°F, 15 mph wind from west             |
| 04-19-90    | 12:46       | LG-2           | Overcast, 65°F, 15 mph wind from west          |
| 04-19-90    | 09:45       | LW-1           | Overcast, 65°F, 0 to 5 mph wind from southeast |
| 04-21-90    | 12:55       | LW-2           | Partly cloudy, 65°F, 15 mph wind from west     |
| 04-20-90    | 17:58       | LW-3           | Clear, 60°F, 20 mph wind from west             |

mph = Miles per hour  
 °F = Degrees Fahrenheit



HARGIS + ASSOCIATES, INC.

TABLE B-8

ELECTRICAL CONDUCTIVITY METER CALIBRATIONS  
APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>DATE</u> | <u>TIME</u> | <u>CALIBRATION<br/>SOLUTION<br/>CONCENTRATION*</u><br>(umhos/cm) | <u>CORRESPONDING<br/>EC METER<br/>READING**</u><br>(umhos/cm) | <u>TEMPERATURE<br/>OF SOLUTION<br/>(°C)</u> |
|-------------|-------------|------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------|
| 04-16-90    | 11:00       | 1,000                                                            | 890                                                           | 18.0                                        |
| 04-16-90    | 11:00       | 10,000                                                           | 7,900                                                         | 18.0                                        |
| 04-17-90    | 07:40       | 1,000                                                            | 680                                                           | 15.0                                        |
| 04-17-90    | 07:40       | 10,000                                                           | 6,800                                                         | 15.0                                        |
| 04-17-90    | 08:30       | 1,000                                                            | 810                                                           | 15.0                                        |
| 04-17-90    | 08:30       | 10,000                                                           | 7,500                                                         | 15.0                                        |
| 04-18-90    | 07:15       | 1,000                                                            | 780                                                           | 15.0                                        |
| 04-18-90    | 07:15       | 10,000                                                           | 6,800                                                         | 15.5                                        |
| 04-18-90    | 07:50       | 1,000                                                            | 810                                                           | 15.0                                        |
| 04-18-90    | 07:50       | 10,000                                                           | 7,600                                                         | 15.0                                        |
| 04-18-90    | 13:43       | 1,000                                                            | 980                                                           | 22.0                                        |
| 04-18-90    | 13:43       | 10,000                                                           | 8,900                                                         | 22.0                                        |
| 04-19-90    | 07:44       | 1,000                                                            | 850                                                           | 16.0                                        |
| 04-19-90    | 07:44       | 10,000                                                           | 7,800                                                         | 16.0                                        |
| 04-19-90    | 08:15       | 1,000                                                            | 640                                                           | 16.0                                        |
| 04-19-90    | 08:15       | 10,000                                                           | 5,900                                                         | 17.0                                        |
| 04-19-90    | 13:00       | 1,000                                                            | 900                                                           | 23.0                                        |
| 04-19-90    | 13:00       | 10,000                                                           | 8,700                                                         | 23.0                                        |
| 04-19-90    | 16:10       | 1,000                                                            | 980                                                           | 22.0                                        |
| 04-19-90    | 16:10       | 10,000                                                           | 8,900                                                         | 22.0                                        |
| 04-20-90    | 07:00       | 1,000                                                            | 720                                                           | 17.0                                        |
| 04-20-90    | 07:00       | 10,000                                                           | 7,100                                                         | 17.0                                        |
| 04-20-90    | 07:31       | 1,000                                                            | 890                                                           | 16.0                                        |
| 04-20-90    | 07:31       | 10,000                                                           | 7,500                                                         | 16.0                                        |
| 04-21-90    | 07:14       | 1,000                                                            | 750                                                           | 15.0                                        |
| 04-21-90    | 07:14       | 10,000                                                           | 7,000                                                         | 15.0                                        |
| 04-21-90    | 07:35       | 1,000                                                            | 750                                                           | 15.5                                        |
| 04-21-90    | 07:35       | 10,000                                                           | 7,700                                                         | 15.5                                        |

\*Yellow Springs Instrument (YSI) conductivity calibration solution values are 1,000 and 10,000 umhos/cm when measured at 25°C

\*\*YSI Model 33 S-C-T meter

EC = Electrical conductivity  
umhos/cm = Micromhos per centimeter  
°C = Degrees Celsius



HARGIS + ASSOCIATES, INC.

TABLE B-9

IDENTIFICATION OF MCDONNELL DOUGLAS SPLIT SAMPLES  
 APRIL 16-21, 1990, INITIAL AND ANNUAL GROUNDWATER SAMPLING ROUNDS

| <u>DATE</u> | <u>SAMPLE LOCATION</u> | <u>SAMPLE TIME</u> | <u>NUMBER OF CONTAINERS</u> | <u>TYPE OF CONTAINERS</u>  | <u>SAMPLES PROVIDED TO</u> |
|-------------|------------------------|--------------------|-----------------------------|----------------------------|----------------------------|
| 04-20-90    | MW-18                  | 08:47              | 2                           | 40-milliliter VOA vial     | D. Palacios,<br>DAC        |
|             |                        |                    | 2                           | 1-liter amber glass bottle |                            |
| 04-20-90    | MW-19                  | 11:00              | 2                           | 40-milliliter VOA vial     | D. Palacios,<br>DAC        |
|             |                        |                    | 2                           | 1-liter amber glass bottle |                            |

VOA = Volatile organic analysis

DAC = Douglas Aircraft Company



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